

SECTION A

1. Work out: $35 - 18$

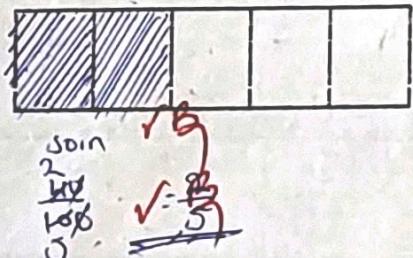
$$\begin{array}{r} 35 \\ - 18 \\ \hline 17 \end{array}$$

~~17~~ ✓M

3. Given that set $K = \{1, 3, 5\}$
Find the number of subsets in set K.

Subsets = 2^n	$= 8$
$= 2^3$	subset of K = 8
$= 2 \times 2 \times 2$	✓A
$= 1 \times 2$	

5. Shade 40% of the figure below.



7. Write "Sixty thousand sixty" in figures.

join

$$\begin{array}{r} \text{Sixty thousand} = 60000 \\ \text{Sixty} = 60 \\ \text{Sum} = 60000 \\ + 60 \\ \hline 60060 \end{array}$$

9. Asigo scored the following marks in three tests; 12, 6 and 9. What was her average score?

join

$$\begin{array}{l} \text{average} = \frac{\text{sum of all items}}{\text{no of all items}} \\ = \frac{12+6+9}{3} \\ = \frac{27}{3} \\ = 9 \end{array}$$

~~Mr Scored~~ ✓A

2. Write 47 in Roman numerals.

join

$$\begin{array}{r} 40+7 \\ = XL+VII \\ = XLVII \end{array}$$

~~XLVII~~ ✓A

4. Simplify: $-3 + 7$

join

$$\begin{array}{r} -3+7 \\ \text{negative } + + + \\ \text{positive } + + + + \\ = 4 \end{array}$$

~~-3+7~~ ✓B

6. A workshop started at 8:30am and ended at 11:00am. How long did the workshop last?

join

$$\begin{array}{l} ST = 8:30\text{am} \\ ET = 11:00\text{am} \\ \Delta = ET - ST \\ = 11:00 - 8:30 \\ = 2 \frac{1}{2} \text{ hrs} \end{array}$$

~~join~~ ✓A

~~join~~ = 2:30am

~~join~~ The workshop lasted for $2\frac{1}{2}$ hrs

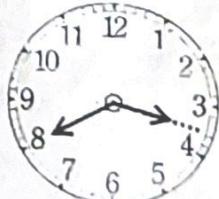
8. Convert 22_{five} to base ten.

join

$$\begin{array}{r} 22_{\text{five}} = 12_{\text{ten}} \\ (2 \times 5) + (2 \times 5) \\ = 2 \times 5 + 2 \times 5 \\ = 10 + 2 \\ = 12_{\text{ten}} \end{array}$$

~~join~~ ✓B

10. Tell the afternoon time on the clock face below.



~~join~~ = 3:40pm ✓B

11. Simplify: $\frac{1}{3} + \frac{2}{5} =$

$$\begin{array}{r} 1 \\ 3 \\ + 2 \\ \hline 14 \\ 15 \\ \cancel{\text{V A}} \end{array}$$

$$\frac{1+2}{3+5} = \frac{3}{15} = \frac{1}{5}$$

13. Change $2\frac{1}{2}$ hours to minutes.

$$\begin{array}{r} \text{join} \\ 1 \text{ hrs} : 60 \text{ mins} \\ 2\frac{1}{2} \text{ hrs} : 5 \times 60 \text{ mins} \\ = 5 \times 60 \text{ mins} \\ = 300 \text{ mins} \end{array}$$

$$\begin{array}{r} -150 \text{ mins} \\ \cancel{\text{V A}} \end{array}$$

15. Find the complement of an angle of 35° .

$$\begin{array}{l} \text{join} \\ \text{let the no be } j \\ 35^\circ + j = 90^\circ \quad \checkmark \text{ my} \\ 35 - 35 + j = 90 - 35 \\ j = 55^\circ \quad \cancel{\text{V A}} \end{array}$$

17. Express 72km covered in 4 hours as m/s.

$$\begin{array}{r} \text{join} \\ 72 \text{ km in 4 hrs} \\ D = 72 \text{ km} \\ T = 4 \text{ hrs} \\ S = ? \\ S = \frac{D}{T} \end{array}$$

$$\begin{array}{r} = \frac{72 \text{ km}}{4 \text{ hrs}} \\ = 18 \text{ km} \\ \text{m/s} = \frac{\text{km}}{\text{hrs}} \times \frac{1000 \text{ m}}{1 \text{ km}} \\ = \frac{18}{4} \times 1000 \text{ m/s} \\ = 4500 \text{ m/s} \quad \checkmark \text{ my} \end{array}$$

$$\begin{array}{r} = 5 \text{ m/s} \\ \cancel{\text{V A}} \end{array}$$

19. Work out the perimeter of the figure below.

$$\begin{array}{c} \text{join} \\ \text{P} = 2(l+b) \\ = 2(7 \text{ dm} + 5 \text{ dm}) \\ = 2(12 \text{ dm}) \\ = 24 \text{ dm} \quad \checkmark \text{ my} \end{array}$$

12. The cost of 7 books is Sh. 42,000. What is the cost of 4 such books?

$$\begin{array}{r} \text{join} \\ 7 \text{ books} : \text{Sh. } 42,000 \\ 1 \text{ book} : \frac{42,000}{7} \\ = \text{Sh. } 6000 \quad \checkmark \text{ my} \\ 4 \text{ books} = \text{Sh. } 6000 \times 4 \end{array}$$

$$\begin{array}{r} = \text{Sh. } 24,000 \\ \cancel{\text{V A}} \end{array}$$

14. How many 250g packets of salt can be got from 8kg?

$$\begin{array}{r} \text{join} \\ 1 \text{ kg} = 1000 \text{ g} \\ 8 \text{ kg} = 8 \times 1000 \text{ g} \\ = 8000 \text{ g} \quad \checkmark \text{ my} \\ = 8000 \text{ g} \div 250 \text{ g} \\ = 32 \text{ packets} \end{array}$$

$$\begin{array}{r} = 32 \quad \cancel{\text{V A}} \end{array}$$

16. Given that $a = 2$ and $b = 3$. Find the value of $2a + 3b$.

$$\begin{array}{r} \text{join} \\ 2a + 3b \\ = 2 \times a + 3 \times b \\ = 2 \times 2 + 3 \times 3 \\ = 4 + 9 \quad \checkmark \text{ my} \\ = 13 \end{array}$$

$$\begin{array}{r} = 13 \quad \cancel{\text{V A}} \end{array}$$

18. Find the square root of 64.

$$\begin{array}{r} \text{join} \\ \sqrt{64} = \frac{2}{2} \frac{64}{2} \frac{32}{2} \frac{16}{2} \frac{8}{2} \frac{4}{2} \frac{2}{2} \frac{1}{1} \\ = \sqrt{16} \times \sqrt{4} \times \sqrt{4} \times \sqrt{4} \\ = 2 \times 2 \times 2 \times 2 \\ = 16 \quad \checkmark \text{ my} \\ = 8 \end{array}$$

$$\begin{array}{r} \sqrt{64} = 8 \quad \cancel{\text{V A}} \end{array}$$

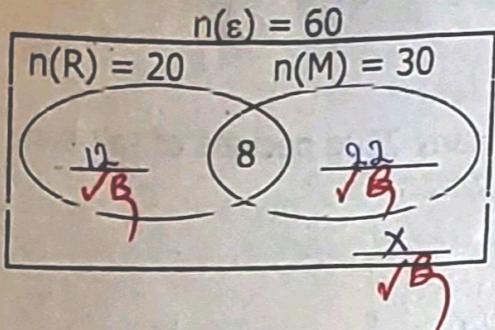
20. Opio borrowed Sh. 360,000 from a bank at a rate of 10% per annum. What interest did he pay to the bank after 3 years?

$$\begin{array}{r} \text{join} \\ I = P \times R \times T \\ = \text{Sh. } 360,000 \times 10 \times 3 \quad \checkmark \text{ my} \\ = \text{Sh. } 360,000 \times 30 \quad \checkmark \text{ my} \\ = \text{Sh. } 360,000 \times 3 \quad \checkmark \text{ my} \\ = \text{Sh. } 108,000 \end{array}$$

$$\begin{array}{r} I = \text{sh. } 108,000 \quad \cancel{\text{V A}} \end{array}$$

SECTION B

21. In a group of 60 farmers, 20 grow Rice (R), 30 grow Maize (M), X grow any of the two crops while 8 farmers grow both.
- a). Show the above information on the Venn diagram below.



- b). How many farmers do not grow rice and maize? (2m)

soin

$$12 + 8 + 22 + x = 60$$

$$x = 42 + x = 60 \quad \checkmark M$$

$$42 - 42 + x = 60 - 42$$

$$x = 18$$

18 farmers did not grow both rice and maize. ✓ A

- c). Find the number of farmers who grow only one crop. (1m)

soin

$$n(R \text{ only}) + n(M \text{ only}) = 12 + 22$$

$$= 34$$

34 farmers grow only one crop. ✓ A

22. A parent distributed Sh. 120,000 to his three children Oscar, Jimmy and Annet in the ratio of 2:1:3 respectively.

- a). How much money did each child get? (4mks)

soin

$$\text{Total ratio} = 2+1+3 = 6$$

$$\text{Oscar} = \frac{2}{6} \times 120,000 = 40,000$$

$$= 2 \times 20,000$$

$$\text{Sh. } 40,000 \quad \checkmark B$$

Jimmy = $\frac{1}{6} \times 120,000 = 20,000$
 $= 1 \times 20,000$
 $\text{Sh. } 20,000 \quad \checkmark B$

$$\text{Annet} = \frac{3}{6} \times 120,000 = 60,000$$

$$= 3 \times 20,000$$

$$\text{Sh. } 60,000 \quad \checkmark B$$

- b). How much more did Annet get than Oscar? (2mks)

soin

$$\text{Annet} = 60,000$$

$$\text{Oscar} = 40,000$$

$$60,000 - 40,000 = 20,000$$

Annet got 20,000 more than Oscar. ✓ A

- 23a). Find the GCF of 9 and 12. (2mks)

soin

$$\begin{array}{r|rr} 3 & 9 & 12 \\ \hline & 3 & 4 \end{array} \quad \therefore \text{GCF} = 3 \quad \checkmark A$$

b). How much more did Annet get than Oscar?

$$\Delta \text{iff} = \text{sh. } 60,000 - \text{sh. } 40,000 = \text{sh. } 20,000$$

Annet got 20,000
Annet got sh. 20,000 more
than Oscar

(2mks)

24. Use 58,024 to answer questions that follow.

a). State the place value of 8.

5 ^{so in} 8 th 0 ² 4
thousands ✓ A

(1mk)

b). Find the value of 5.

5 8 0 2 4
5 $\times 10,000$ ✓ my
= 50,000 ✓ A

(2mks)

c). Find the product of the place value of 0 and the value of 4.

prod = 100 ✓ my prod = 400
 $\times 4$ ✓ my $\times 4$
= 400 ✓ A

(3mks)

25a). Simplify: $6 - 1\frac{1}{2}$.

so in
 $6 - \frac{1}{2} = \frac{12-3}{2} = \frac{9}{2} = 4\frac{1}{2}$ ✓ A

(2mks)

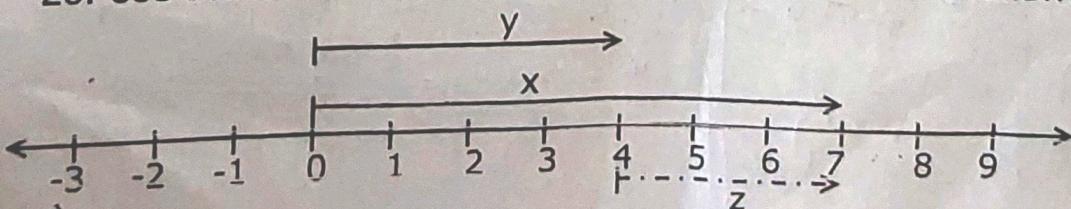
b). Work out: 0.36×0.4

so in
 0.36×0.4
 0.9
 $= \frac{36}{100} \times \frac{4}{10} = \frac{144}{1000} = 0.144$ ✓ A

$\frac{16}{100}$
 0.16
 0.16 ✓ A

(3mks)

26. Use the number line below to answer questions that follow:



a). Write the integer for:-

i). $x = +7$ ✓B

ii). $y = -4$ ✓B

iii). $z = -3$ ✓B

b). Write a correct mathematical statement represented on the above.

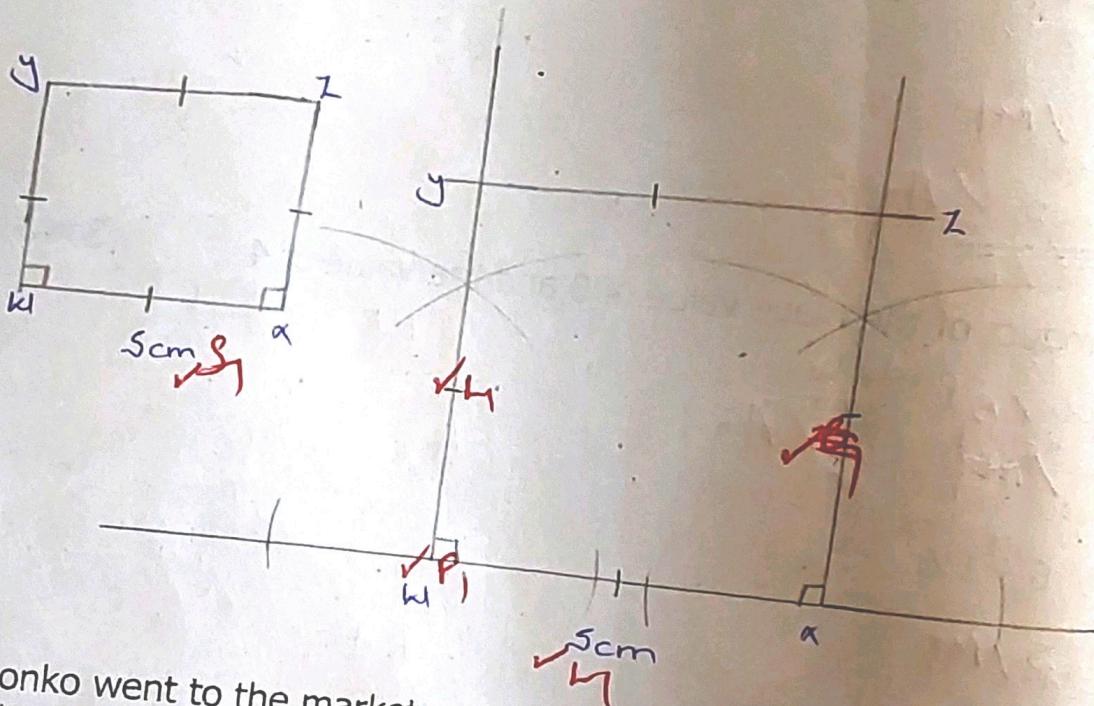
Soln

$$x - y = z \quad \checkmark M$$

$$+7 - -4 = +3 \quad \checkmark A$$

27. With the help of a ruler, a pencil and a pair of compasses only, draw a square WXYZ where line WX = 5cm.

Sketch



28. Ssonko went to the market and bought the following items.

- 2kg of sugar at Sh. 3500 per kg
- 1 1/2 kg of maize flour at Sh. 2000 per kg
- 500g of salt at Sh. 1600 per kg
- 3 litres of milk for Sh. 6,000

a). Calculate his total expenditure.
Soln

$$\begin{aligned} \text{Sugar } 2 \times \text{Sh. } 3500 &= \frac{3}{2} \times \text{Sh. } 2000 \\ \text{Sugar} = \cancel{\text{Sh. } 7000} &\quad \cancel{\text{Sh. } 1000} \\ \text{Maize} &= 1 \frac{1}{2} \times \text{Sh. } 2000 \\ - 1 \frac{1}{2} \times \text{Sh. } 2000 &= 3 \times \text{Sh. } 2000 \\ &= \text{Sh. } 6000 \\ \text{Salt} &= \cancel{\text{Sh. } 500} \\ &= \frac{500}{1000} \times 1600 \\ &= \text{Sh. } 800 \\ \text{Milk} &= \cancel{\text{Sh. } 6000} \\ &= \text{Sh. } 16800 \end{aligned}$$

remained with Sh. 3200, how much money did he leave at first?
 sum : Sh. 16800
~~+ Sh. 3200~~
20000

He leaved with ~~20000~~ at first

(2mks)

sh = 20,000

class of 80 pupils, 2 of them are boys and the rest are girls.

the fraction for girls.

action: $\frac{5}{5} - \frac{2}{5}$ girls = $\frac{3}{5}$
~~5~~
~~3~~
~~= $\frac{3}{5}$~~

many boys are in the class?

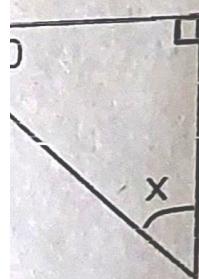
so pupils = 2×16
~~16~~
~~80 pupils~~ = 32 boys are in the class

many more girls than boys are there?

$\frac{3}{5}$ of 80
~~5~~
~~16~~
~~x 80~~
~~3x16~~
~~= 48 girls~~
~~48 girls~~

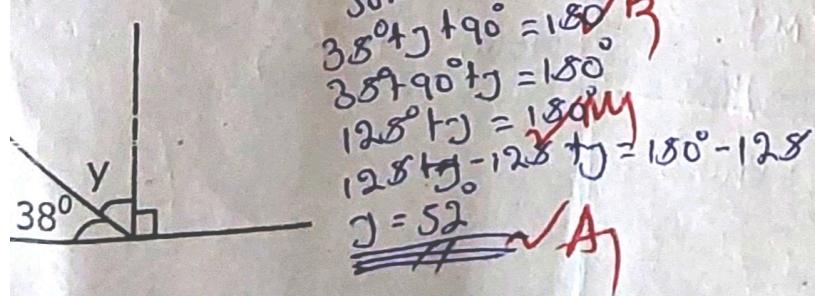
boys = 32
 diff = $\frac{16}{32}$ ~~my~~
~~16~~
~~16 more girls than boys are there~~

State the size of the angles marked with the letters.



so in
 $SOA + x = 90^\circ$
 $SPB + x = 90^\circ - SO$
 $x = 45^\circ$

so in
 $SO + 90^\circ + x = 180^\circ$
 $140 + x = 180^\circ$ ~~my~~
 $140^\circ - 140^\circ + x = 180^\circ - 140^\circ$ ~~my~~
 $x = 40^\circ$



so in
 $38^\circ + j + 90^\circ = 180^\circ$ ~~B~~
 $38^\circ + 90^\circ + j = 180^\circ$
 $128^\circ + j = 180^\circ$ ~~my~~
 $128^\circ + j - 128^\circ = 180^\circ - 128^\circ$
 $j = 52^\circ$

31. John bought a blanket at Sh. 100,000 and later sold it at Sh. 80,000.
 a). Find the loss he made. (2mks)

$$\begin{array}{rcl} \text{Bp - Sp} & & \text{Soin} \\ & = \text{Sh. } 100,000 & \\ & - \text{Sh. } 80,000 & \checkmark \text{M} \\ \hline & \text{20,000} & \end{array}$$

$$\text{Loss} = \text{Sh. } 20,000$$

b). Calculate his percentage loss. (2mks)

$$\begin{array}{rcl} \frac{\text{new no}}{\text{old no}} \times 100\% & = 20\% \\ & = 20\% & \checkmark \text{A} \end{array}$$

32. Study the table below and use it to answer questions that follow.

Mass (kg)	70	50	90	80
Number of People	4	6	2	8

a). How many people were weighed? (1mk)

$$\begin{array}{l} = 4 + 6 + 2 + 8 \checkmark \text{M} \\ = 10 + 10 \\ = \underline{\underline{20 \text{ people}}} \checkmark \text{A} \end{array}$$

b). What was the modal mass of the people? (1mk)

$$\text{modal} = \underline{\underline{80 \text{ Kg}}} \checkmark$$

c). Calculate the mean.

Soin

$$\begin{array}{l} \text{Mean} = \frac{\text{sum of all items}}{\text{no of all items}} \\ = \frac{70 + 50 + 90 + 80}{20} \checkmark \text{M} \\ = \frac{70 \times 1 + (50 \times 6) + (90 \times 2) + (80 \times 8)}{20} \\ = \frac{280 + 300 + 180 + 640}{20} \end{array}$$

$$\begin{array}{rcl} & = \frac{1200}{20} & \checkmark \text{A} \\ & = \underline{\underline{70 \text{ Kg}}} & \end{array}$$

(3mks)

The End